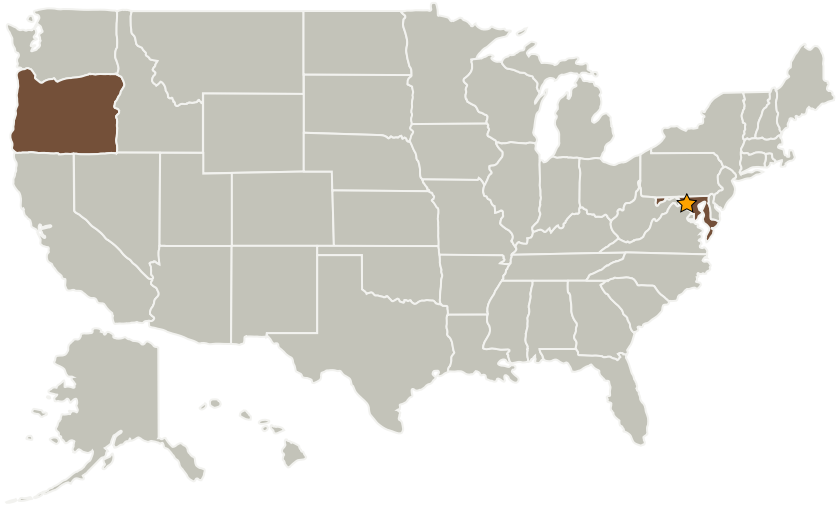
# An Analytical Particle Biogeochemical Sensor, Phase I

Completed Technology Project (2004 - 2004)

## Project Introduction

Evaluation of the technical and scientific feasibility of developing a model and sensor for the analytical optical determination of particle biogeochemical properties in natural waters is proposed. The objective of the proposed work is 1) to develop an inversion model, termed the General Optical-Biogeochemical Inversion (GOBI), for the analytical determination of particulate organic carbon (POC) and other biogeochemical properties from optical measurements, and 2) to develop an in-situ optical sensor (in Phase 2) for measurements of POC and other biogeochemical properties in natural waters based on the GOBI. For the first time, the model would allow in-situ analytical determination of POC irrespective of changing particle composition. Current empirical models are not applicable in case II waters. The GOBI model will be based on recently peer-review published analytical inversion models authored by the Principal Investigator and collaborators.

## Primary U.S. Work Locations and Key Partners

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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Goddard Space Flight Center (GSFC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Goddard Space Flight Center(GSFC) | Lead Organization | NASA Center | Greenbelt, Maryland |
| Western Environmental Technology Laboratories, Inc. | Supporting Organization | Industry | Philomath, Oregon |

| Primary U.S. Work Locations | |
|---|---|
| Maryland | Oregon |

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Michael Twardowski

## Technology Areas

**Primary:**

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.1 Sensors: Air, Water, Microbial, and Acoustic